Reviewer's report

Title: Characterization of medical students recall of factual knowledge using learning objects and repeated testing in a novel e-learning system

Version: 2
Date: 4 September 2014
Reviewer: Ronny Lehmann

Reviewer's report:

Major Compulsory Revisions

1. The study questions are described globally at the background section and could be further specified to demonstrate the underlying hypotheses. The questions should be concrete answerable by the evaluated data.

2. In this context Discussion, line 171-2 suggests that the author expected a group difference on s1, not essentially on s2. As the intervention group received a second learning intervention before testing compared to control it remains unclear to me why a potential difference would scale down.

3. The aspect how the described e-learning system could be curricularly integrated needs to be further discussed. The text suggests that the e-learning tool is offered as an optional and add-on learning activity that is open to both, teachers and learners. This raises questions like who is responsible for the content and its maintenance, the medical school or each section, and would students spend time for an optional learning activity when their schedule is already that busy as reported. This is an issue on which many previous e-learning activities have failed, after huge efforts for setting up.

4. For successful establishment of e-learning resources ‘blended learning’ approaches are widely described. Such use is implied in the text but could be discussed more explicit with regards to other published approaches which are similar. In this context the author should describe how ecological scenarios for the usage of the platform could look like to explain its surplus for the med school.

5. When describing potential implications to the learner such as a learning control tool to optimize self-directed learning time, other existing methods herefore should be discussed with pro and cons, e.g. progress tests or just a simple MC-test, that could be implemented easily on an online platform.

Minor Essential Revisions

6. Abstract, Methods line 12 and 13: consisted of

Discretionary Revisions

7. Methods, study design line 75: The text suggests that the respond rate to
volunteer was 100% what surprises (98 out of 98?).

8. Methods, study design, sample size estimation: Which difference between groups did you expect to find with which power of testing? What difference between groups is relevant (not only statistically significant) when using subjective testing methods?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.